# Grand Gulf 1
# 2Q/2014 Plant Inspection Findings

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## Initiating Events

**Significance:** G Sep 30, 2013
Identified By: NRC
Item Type: FIN Finding
**Failure to Follow Alarm Response Steps to Restore the TSE Following Maintenance**
The inspectors reviewed a Green self-revealing finding for the failure to follow Procedure 04-1-02-1H13-P680-9A, “TSE INFL OFF,” Revision 36; in that operations personnel did not verify steps were followed per this alarm response procedure prior to returning the turbine thermal stress evaluator (TSE) to service following maintenance activities. The failure to follow alarm response procedure then resulted in an automatic reactor scram on July 30, 2013. Site personnel determined that the scram was caused by high reactor pressure resulting from the turbine unloading beyond the capability of the bypass valves after restoring the TSE to service following maintenance. On July 26, 2013, the control room received an alarm "TSE-STU CAB FAIL." The licensee failed to determine the correct cause of the alarm due to inadequate troubleshooting. Therefore, when the maintenance was completed and the TSE was returned to service, the turbine started to unload resulting in a reactor scram due to reactor vessel high pressure. The immediate corrective actions included determining the cause of the scram and taking actions to restore equipment prior to plant startup. The licensee documented this issue in their corrective action program as Condition Report CR-GGN-2013-04943.

The failure to follow alarm response steps to restore the TSE following maintenance is a performance deficiency. Specifically, Procedure 04-1-02-1H13-P680-9A, “TSE INFL OFF,” Revision 36, step 4.1 requires operational personnel to ensure that the TSE is functioning correctly following maintenance prior to restoring to service. The performance deficiency is more than minor, and therefore a finding, because it is associated with the Initiating Events Cornerstone attribute of human performance and adversely affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and that challenge critical safety functions during power operations. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Initiating Events Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” the inspectors determined that the issue has a very low safety significance (Green) because it only caused a reactor trip and did not cause a loss of mitigating equipment relied on to transition the plant from the onset of a trip to a stable shutdown condition. The inspectors determined that the apparent cause of the finding was that the licensee did not troubleshoot to validate the cause for alarm “TSE STU Cab Failure” in accordance with station troubleshooting procedures. Therefore, the finding has a cross-cutting aspect in the area of human performance associated with the work practices component because the licensee did not use the troubleshooting process effectively [H.4(b)].

Inspection Report# : 2013004 *(pdf)*

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## Mitigating Systems

**Significance:** G Jun 30, 2014

Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Failure to Promptly Reinstate an Essential-Critical Preventative Maintenance Task for a High-Critical Component**
The inspectors reviewed a self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to promptly reinstate an essential-critical preventative maintenance task after they identified that it had been improperly retired. Specifically, the licensee did not reinstate and complete Preventive Maintenance Task PMRQ 50024451-04 prior to the failure of diode CR6 on May 21, 2013, which resulted in the division 2 diesel generator failing its monthly functional test and the licensee declaring it inoperable. The operators secured the diesel generator and wrote Condition Report CR-GGN-2013-03423 documenting the issue. The licensee performed a
Failure Modes Analysis evaluation to determine the possible cause for the observed conditions. During troubleshooting efforts, the licensee addressed the potential transformer (PT1), the potential transformer's fuses, inline fuses, and the voltage regulator circuit bridge diodes. The Failure Modes Analysis evaluation showed that all of the listed components were in satisfactory condition, except that one of the six diodes used in the voltage regulator circuit diode bridge, Diode CR6, had shorted. The licensee replaced the shorted diode and returned the diesel generator to operational status on May 24, 2013.

The licensee's failure to implement PMRQ 50024451-04 after discovering it had been improperly retired was a performance deficiency, in that it represented a failure to promptly correct a condition adverse to quality. The performance deficiency is more than minor and therefore a finding because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone's objective of ensuring the availability, reliability, and capability of systems that respond to prevent undesirable consequences. Specifically, Diode CR6 remained in the voltage regulator circuit bridge until it failed, thereby triggering a failure of the division 2 diesel generator, which caused the diesel generator to be inoperable. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," dated June 19, 2012, the inspectors determined that the issue affected the Mitigating Systems Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," dated June 19, 2012, the inspectors determined that the issue required a detailed risk evaluation because the finding represents an actual loss of function of a single train for greater than its Technical Specification allowed outage time. The total exposure period was 15 days. The allowed outage time was 14 days. The senior reactor analyst performed a detailed risk analysis and determined the delta-CDF was less than 1.0 x 10-6 and the delta-LERF was less than 1.0 x 10-7, therefore this finding was of very low safety significance (Green). The apparent cause of this finding was that the licensee did not recognize the risk of not performing the preventive maintenance task, which led to the decision to exclude the task from the division 2 allowed outage time schedule. Therefore, the finding has a cross-cutting
aspect in the human performance area associated with conservative bias because the licensee did not use decision-making practices that emphasize prudent choices over those that are simply allowable.
Inspection Report# : 2014003 *(pdf)*

**Significance:** G May 02, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Provide Adequate Emergency Lighting**
The team identified a Green non-cited violation of License Condition 2.C.(41), "Fire Protection Program," for the failure to provide adequate 8-hour emergency lights. Specifically, the licensee failed to provide adequate lighting at all locations operators perform actions within 8 hours during an alternative shutdown outside of the control room. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2014-03508 and confirmed operators are required to carry flashlights.

The failure to provide adequate 8-hour emergency lights for safe shutdown outside of the control room was a

performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences because it affected the ability to reach and maintain safe shutdown conditions in case of a fire. The team evaluated this finding using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," dated September 20, 2013. The team assigned the finding a low degradation rating because the failure to provide adequate 8-hour emergency lights at all locations would not prevent reaching and maintaining safe shutdown conditions in the event of a control room fire. Specifically, the team determined that operators performing the alternative shutdown are required to carry flashlights. Because this finding had a low degradation rating, it screened as having very low safety significance (Green).
The team reviewed Inspection Manual Chapter 0310 and assigned a cross-cutting aspect in the area of Human Performance for failure to ensure equipment was available and adequate to support nuclear safety. Specifically, the Licensee added steps to operate breakers in an electrical panel in 2005 and 2012. On both occasions the Licensee failed to provide adequate emergency lighting at that location as required by the fire protection program [H.1].
Inspection Report# : 2014007 *(pdf)*

**Significance:** G Mar 31, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Ensure Scaffold Activity Would not Interfere with Fire Brigade Response**
The inspectors identified a non-cited violation of License Condition 2.C(41), "Fire Protection Program," for the failure to adhere to procedural requirements to ensure that scaffold installed in the plant would not prevent or restrict the fire brigade from accessing a certain route used for response to a fire in the area. On February 4, 2014, the licensee installed a scaffold in the containment building for an inspection. The licensee's procedure required a walkdown of proposed scaffold to determine if the scaffold would prevent or restrict fire brigade access. The initial reviewer identified that the ladder to access the scaffold would restrict fire brigade access, thus the ladder was not installed until it was required. On March 1, 2014, the ladder was installed for the four hour inspection. Once completed, the licensee failed to remove the scaffold ladder to restore normal access to the area. On March 4, 2014, the inspectors identified that the scaffold ladder was still installed. The inspectors brought their concern to the licensee, who determined that the scaffold would adversely affect the response of fire brigade members to that area of containment. As an immediate corrective action, the licensee removed the scaffold ladder to allow adequate access for the fire brigade members. The licensee documented this issue in Condition Report CR-GGN-2014-02363.
The failure to ensure fire brigade members had adequate access passed a scaffold installed in the containment building was a performance deficiency. The performance deficiency was more than minor and therefore a finding because it adversely impacted the protection against external factors attribute of the Mitigating System Cornerstone in that the fire brigade's inability to gain access to certain areas in containment could result in preventing prompt extinguishing of fires. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," June 19, 2012, the inspectors determined that the issue affected the Mitigating Systems Cornerstone and that the finding pertained to a degraded condition while the plant was shutdown for refueling outage RF19. As a result, the inspectors were directed to Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," dated February 28, 2005. The inspectors determined that Appendix G did not address fire brigade issues and solicited input from the senior reactor analyst. The senior reactor analyst performed a detailed risk evaluation and determined that Inspection Manual 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," June 19, 2012, Exhibit 2, "Mitigating System Screening Questions," adequately bounded the performance deficiency. The inspectors determined that the finding involved the response time of the fire brigade to a fire, and the finding was of very low safety consequence (Green) because the fire brigade's response time was mitigated by other defense-in-depth elements such as area combustible limits were not exceeded, installed fire detection systems were functional, and alternate means of safe shutdown were not impacted. Specifically, there were no combustibles in the area beyond limits, all fire detectors for the area were functional, and the plant was in a shutdown condition with the cavity flooded at the time. The apparent cause of this finding was the work groups involved did not communicate the

significance of the impact the scaffold ladder had on fire brigade access to the area and the importance of having the ladder removed upon completion of the work. Therefore, the finding has a cross-cutting aspect in the human performance area associated with team work, in that the individuals and workgroups failed to communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety was maintained.

Inspection Report# : 2014002 *(pdf)*

**Significance:** G Sep 30, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Follow Procedure Results in Inadequate Operability Determination**
The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” regarding the licensee’s failure to follow the requirements of Procedure EN-OP-104, “Operability Determinations.” Specifically, the inspectors identified that the licensee failed to establish an adequate basis for operability when a degraded or nonconforming condition had been identified. On August 30, 2013, Condition Report CR-GGN-2013-05604 was initiated to document a step change in the standby service water (SSW) siphon line K factor, which is a measure of flow through the siphon line. The K factor could have increased due to air entrapment in the siphon line that resulted from using air to mix the basin water following chemical treatments. The inspectors challenged the validity of the evaluation because the second step change in K factor, from 48 to 64, represented new information that had not been evaluated in the previous condition report. As an immediate corrective action, the licensee re-performed the operability determination and provided an adequate basis of operability by evaluating the system with the additional K factor data. Furthermore, the licensee verified the siphon line did not have any obstructions by observing the SSW basin levels equalize as water flowed through the siphon line. The licensee entered this issue into the corrective action process under Condition Report CR-GGN-2013-05687.

The failure to perform an operability determination in accordance with procedure was a performance deficiency. The performance deficiency was more than minor, and is therefore a finding, because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely impacted the cornerstone objective of ensuring the reliability, availability and capability of systems that respond to initiating events to prevent undesirable consequences. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings at Power,” the inspectors determined that the issue has very low safety significance (Green) because all applicable screening questions in Manual Chapter 0609, Appendix A, Exhibit 2, were answered “no.” The inspectors determined that the apparent cause of this finding was that the licensee had identified and used previously completed operability evaluations without verifying that the previously completed evaluations were fully applicable to the identified conditions. Therefore, the finding had a cross-cutting aspect in the problem identification and resolution area, corrective action program component because the licensee failed to properly evaluate for operability conditions adverse to quality [P.1(c)].

Inspection Report# : 2013004 *(pdf)*

**Significance:** G Sep 30, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Review Temporary Modifications by Operations Personnel During Turnover**
The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” regarding the licensee’s failure to follow the requirements of Procedure 02-S-01-4, “Shift Relief and Turnover,” Revision 42. Specifically, the licensee failed to ensure proper turnover of the status of

temporary modifications installed in the plant was being conducted by operations staff during turnover. The inspectors determined that the operations staff was required by Attachment III of that procedure to review the TMs log prior to taking the shift. The inspectors interviewed the operations staff and asked if the TMs were reviewed prior to taking shift that day. The staff member stated he had not and when asked about Attachment III of the turnover procedure, he was not familiar with that attachment of the procedure. The inspectors interviewed additional operations staff members about the review of temporary modification status during turnover, and they also indicated they had not reviewed temporary modification during turnover. As a corrective action, the licensee added copies of Attachment III of the shift turnover procedure to the operations staff turnover book to ensure TMs were reviewed during shift turnover. The licensee entered this issue into the corrective action process under Condition Reports CR-GGN-2013-04481 and CR-GGN-2013-05955.

The failure to review temporary modifications by operations personnel during turnover in accordance with station procedures was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, it had the potential to lead to more significant safety concerns. Specifically, operators not reviewing the status of TMs installed in the plant during turnover could result in a loss of configuration control of plant equipment that could result in an improper response by operators to plant events. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone. Using NRC Inspection Manual Chapter 0609, Attachment 4, Table 3, the inspectors were directed to NRC Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” The inspectors determined that the issue had a very low safety significance (Green) because it was not a deficiency affecting the design or qualification of a mitigating system, structure, or component, does not represent a loss of system or function, does not represent a loss of function for greater than its technical specification allowed outage time, and does not represent a loss of function as defined by the licensee’s Maintenance Rule program for greater than 24 hours. The inspectors determined the apparent cause of this finding was that licensee personnel were not using Attachment III of the operations turnover procedure. Therefore, the finding has a cross-cutting aspect in human performance area associated with work practices in that the licensee management did not provide proper oversight to ensure a proper turnover was being conducted by operations personnel [H.4.(c)].

Inspection Report# : 2013004 *(pdf)*

**Significance:** G Sep 30, 2013
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Failure to Maintain design Control of the Power Supplies for the Emergency Switchgear and Battery Room Fire Dampers**
The inspectors reviewed a self-revealing Green non-cited violation of Facility Operating License Condition 2.C (41), “Fire Protection Program,” involving the failure to maintain design control of the power supplies for the emergency switchgear and battery room fire dampers. During a surveillance of the division 2 carbon dioxide Fire Damper Actuation System, ten division 1 switchgear and battery room cooler fire dampers were inadvertently closed. Electricians investigated and found that a common ground existed between the division 1 and 2 emergency switchgear and battery room damper control panels. The common ground was determined to originate from a factory installed ground strap connecting the negative terminal to the ground/neutral on the emergency switchgear and battery room damper control power supplies. The licensee reviewed plant drawings and determined that the ground strap on the power supplies should have been removed prior to installation due to this being designed as a non-grounded system. As an immediate corrective action, the licensee removed the factory installed ground straps and restored the system to operable status. The licensee entered this issue into the corrective action process under Condition Report CR-GGN-2013-03827.

The failure to verify a new power supply was a like-for-like replacement of the original power supply to ensure the replacement power supply did not alter the design of the damper control system was a performance deficiency. The

performance deficiency was more than minor, and therefore a finding, because it was associated with the configuration control attribute of the Mitigating Systems Cornerstone and adversely impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone. Using NRC Inspection Manual Chapter 0609, Attachment 4, Table 3, the inspectors were directed to NRC Inspection Manual Chapter 0609, Appendix F, “Fire Protection Significance Determination Process.” The inspectors determined that the finding had an adverse effect on the fixed fire suppression systems. The inspectors assigned a low degradation rating due to the fact that the automatic fire suppression system’s performance and reliability was minimally impacted by the inspection finding. Since the finding was assigned a low degradation rating, it screened as being of very low safety significance (Green). The apparent cause of this finding was the procurement engineering evaluation did not verify the replacement power supplies met the design requirements to be compatible with the unique design of the emergency switchgear and battery room damper control system. Therefore, the finding had a cross-cutting aspect in the area of human performance, work practices component because the licensee failed to properly perform a procurement evaluation in accordance with station procedures [H.4(b)].

Inspection Report# : 2013004 *(pdf)*

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# Barrier Integrity

**Significance:** G Dec 31, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Comply with Technical Specification 3.4.11**
The inspectors identified a non-cited violation of Technical Specification 3.4.11 for the failure to comply with the Reactor Coolant System (RCS) Pressure and Temperature Limits Report (PTLR) during plant cold startups. Specifically, the PTLR had a lower limit of zero psig, and the licensee operated the reactor pressure vessel (RPV) below zero psig during the plant start-up that commenced on November 2, 2013. A review of plant data showed that the RPV pressure was maintained below zero psig for approximately 2 hours. The licensee performed an engineering evaluation and determined that the maximum compressive stress experienced by the RPV did not exceed the maximum yield strength of RPV. Immediate corrective action included revising Procedure 03-1-01-1, “Cold Shutdown to Generator Carrying Minimum Load,” to ensure the RPV is pressurized prior to opening the main steam isolation valves (MSIVs) and providing training on the procedural changes to all the operating crews. The licensee entered this issue into the corrective action process under Condition Report CR-GGN-2013-07021.

The failure to comply with the RCS Pressure and Temperature Limits Report specified in Technical Specification 3.4.11 was a performance deficiency. The performance deficiency was determined to be more than minor, and therefore a finding, because it was associated with the human performance attribute of the Barrier Integrity Cornerstone and had the potential to adversely affect the associated cornerstone objective of providing reasonable assurance that a physical design barrier (reactor coolant system) protects the public from radionuclide release caused by accidents or events. Specifically, without NRC review and approval of revised pressure and temperature limits that include operating the RPV below zero psig, the inspectors did not have reasonable assurance the RPV would not be adversely affected. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," June 19, 2012, the inspectors determined that the issue affected the Barrier Integrity Cornerstone. Using NRC Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” June 19, 2012, Exhibit 3, the inspectors determined that since this finding involved the reactor coolant system boundary, a detailed risk evaluation was required. The Senior Reactor Analyst reviewed the finding and determined

that a detailed risk evaluation was not required. The licensee performed an engineering evaluation and concluded that there was no impact to the reactor vessel. As a result, the Senior Reactor Analyst concluded that there was no change in risk due to the performance deficiency. The inspectors determined that since the procedural steps to perform Attachments VIII and X concurrently had been in place since 1994, this was a latent issue; therefore no cross-cutting aspect was assigned.
Inspection Report# : 2013005 *(pdf)*

**Significance:** G Dec 31, 2013
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Failure to Provide Adequate Procedures Results in Loss of Safety Function**
The inspectors reviewed a self-revealing, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the failure to provide an adequate procedure for a safety related activity. On December 17, 2013, while performing Surveillance Procedure 06-IC-1E31-Q-1016-02, "RCIC Steam Supply Pressure Low Functional Test," Revision 111, the reactor core isolation cooling (RCIC) system became inoperable due to the procedure being incorrectly revised. Furthermore, the procedure error resulted in the containment isolation capability for RCIC being lost for approximately 1 hour. As an immediate corrective action, the licensee restored the breakers regaining isolation capability, and reopened the RCIC inboard isolation valve, thus restoring RCIC to operable status. The licensee entered this issue into the corrective action process under Condition Reports CR-GGN-2013-07720, CR-GGN-2013-07733, and CR-GGN-2013-07374.

The failure to have an adequate procedure for the reactor core isolation cooling steam supply pressure low functional test is a performance deficiency. The performance deficiency was more than minor and therefore a finding because it was associated with the procedure quality attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This performance deficiency was also associated with the procedural quality attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstones objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," June 19, 2012, the inspectors determined the issue affected the Barrier Integrity Cornerstone. The inspectors used Inspection Manual Chapter 0609, Appendix H, "Containment Integrity Significance Determination Process," May 6, 2004, and determined the finding was a type B finding at full power. Using Table 6.1, "Phase 1 Screening-Type B Findings at Power," the inspectors concluded that since this issue involved containment isolation valves in a BWR Mark III containment, a Phase 2 analysis was necessary. Using Table 6.2, "Phase 2 Risk Significance – Type B Findings at Full Power," the inspectors concluded that the risk significance was very low (Green) because the exposure time was less than 3 days. Furthermore, the inspectors determined that this issue affected the Mitigating System Cornerstone. Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power", June 19, 2012, Exhibit 2, the inspectors determined that since the finding represented a loss of system and/or function, a detailed risk evaluation was required. The inspectors utilized the Grand Gulf Standardized Plant Analysis Risk model to determine the change in core damage frequency (CDF) due to the loss of safety function. The inspectors assigned the RCIC system a failure probability of 1.00 for a conservative duration of 1 hour. The resulting change in CDF was 1.9E-9/year, thus the finding was of very low safety significance (Green). The Senior Risk Analyst reviewed the inspectors' evaluation and verified the conclusions to be correct. The apparent cause of this finding was that the licensee failed to effectively utilize human error prevention techniques. Therefore, the finding had a cross-cutting aspect in the area of human performance, work practices because the licensee did not perform adequate self and peer checking while performing an activity affecting quality [H.4(a)]

Inspection Report# : 2013005 *(pdf)*

**Significance:** G Sep 30, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Obtain NRC Approval for a Change in Method of Evaluation for Determining Reactor Vessel Fluence**
SL-IV. The team identified a Severity Level IV non-cited violation of 10 CFR 50.59, "Changes, Tests, and Experiments," involving the licensee's failure to obtain a license amendment pursuant to 10 CFR 50.90 prior to implementing a new method of evaluation for determining reactor vessel neutron fluence. On November 4, 2003, the NRC issued Amendment Number 160 to the Facility Operating License of the Grand Gulf Nuclear Station. The amendment revised the Updated Final Safety Analysis Report (UFSAR) to change the Reactor Vessel Material Surveillance Program to reflect participation in the Boiling Water Reactor Vessel and Internals Project (BWRVIP) Integrated Surveillance Program (ISP). Additionally, the amendment revised the UFSAR to state that neutron fluence calculations performed after 2002 will be in accordance a methodology that has been approved by the NRC staff and is consistent with the attributes identified in NRC Regulatory Guide 1.190, "Calculation and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence." The licensee developed a new neutron fluence calculation method which was based on a neutron fluence calculation method that had been previously approved by the NRC for another facility, which was documented in "Nine Mile Point Nuclear Station, Unit No. 1 – Issuance of Amendment RE: Pressure-Temperature Limit Curves and Tables," dated October 27, 2003. The NRC identified that the calculation, which was developed for GGNS, used the CASMO-4/SIMULATE code package to calculate the neutron source, whereas the prior calculation performed for Nine Mile Point Nuclear Station (NMP) used the ORIGEN code to calculate the neutron source. The inspectors determined that, although these codes are intended for the same purpose, they are distinct codes and the NRC approved only the use of one neutron source code (i.e., ORIGEN) in the neutron fluence calculation method of evaluation at Nine Mile Point. This finding was entered into the licensee's corrective action program as Condition Report CR-GGN-2013-04743.

The licensee's failure to determine that a change to their method of evaluation for calculating reactor vessel neutron fluence was a departure from a method of evaluation approved by the NRC and required NRC review and approval prior to implementation was a performance deficiency. The performance deficiency was evaluated using traditional enforcement because the finding had the ability to impact the regulatory process. The performance deficiency was more than minor because there was a reasonable likelihood that the change would require NRC review and approval prior to implementation. In accordance with the NRC Enforcement Manual, risk insights from Inspection Manual Chapter 0609, "Significance Determination Process," are used in determining the significance of 10 CFR 50.59 violations. Using the Inspection Manual Chapter 0612, Appendix B, "Issue Screening," the team determined the finding adversely affected the Barrier Integrity Cornerstone. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the team determined the finding required a detailed risk evaluation because the finding involved the reactor coolant system boundary. A Senior Reactor Analyst performed the evaluation and determined the finding had very low safety significance (i.e., Green) because the NRC performed calculations and did not determine that the licensee's Pressure-Temperature limits had or would have expired or been invalid; therefore, the change in risk was negligible. Since the finding had very low safety significance, the finding was determined to be Severity Level IV, in accordance with the NRC Enforcement Policy. The finding does not have a cross-cutting aspect because cross-cutting aspects are not assigned to traditional enforcement violations.

Inspection Report# : 2013004 *(pdf)*

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# Emergency Preparedness

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# Occupational Radiation Safety

**Significance:** G Mar 31, 2014
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Failure to Control a Locked High Radiation Area Due to Unsecured Highly Radioactive Materials Stored in the Pool**
The inspectors reviewed a self-revealing, non-cited violation of Technical Specification 5.7.3, resulting from the licensee's failure to control a high radiation area with radiation levels greater than 1000 millirem per hour. As immediate corrective actions, the licensee stopped the work activity, placed a senior radiation protection technician in control of the area, surveyed all affected areas, and properly posted and controlled the area. The licensee also checked qualifications of the involved individuals and conducted a root cause evaluation for the event. This event was documented in the licensee's corrective action program as Condition Reports CR-GGN-2014-02219, CR-GGN-2014-02221, and CR-GGN-2014-02224.
The failure to control a high radiation area with radiation levels greater than 1000 millirem per hour was a performance deficiency and a violation of Technical Specification 5.7.3. The performance deficiency was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation because it removed a barrier intended to prevent the worker from receiving unexpected dose. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, the inspectors determined the violation has very low safety significance because: (1) it was not an as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This violation has a cross-cutting aspect in the human performance area, associated with procedure adherence, because the licensee failed to follow process, procedures, and work instructions when they did not inventory and ensure control of the dry tube plunger end as it was stored in the horizontal fuel transfer system pool within containment.
Inspection Report# : 2014002 *(pdf)*

**Significance:** G Dec 31, 2013
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Entry Into A High Radiation Area Without A Required Radiation Monitoring Device**
The inspectors reviewed a self-revealing, non-cited violation of Technical Specification 5.7.1, resulting from an individual entering a high radiation area without the required radiation monitoring device. This issue was entered into the licensee's corrective action program as Condition Report CR-GGN-2012-04112. As a corrective action, the radiation protection manager coached the individual on the need for proper dosimetry devices in high radiation areas.
The entry into a high radiation area without all required radiation monitoring devices was a performance deficiency and was a violation of Technical Specification 5.7.1. The performance deficiency was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation because it removed a barrier intended to prevent the worker from receiving unexpected dose. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, the inspectors determined the violation had very low safety significance because: (1) it was not an as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This violation had a cross-cutting aspect in the human performance area, associated with the work practices component, because the worker and crew members did not use human error prevention techniques, such as self and peer checking [H.4(a)].

Inspection Report# : 2013005 *(pdf)*

**Significance:** G Dec 31, 2013
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Failure To Survey Resulting in Personnel Entry To A High Radiation Area**
The inspectors reviewed a self-revealing, non-cited violation of 10 CFR 20.1501(a) for failure to survey, which resulted in a worker entering an unposted high radiation area. This issue was entered into the licensee's corrective action program as Condition Reports CR-GGN-2012-08436 and CR-GGN-2012-09225. As corrective actions, the licensee coached radiation protection personnel on exhibiting a questioning attitude, walked down all affected areas; verified correct postings were used, and surveyed for any other unanticipated dose rate alarms.

The failure to survey and determine radiation levels was a performance deficiency. The significance of the performance deficiency was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation because the failure exposed a pipefitter to higher than anticipated radiation dose rates. The inspectors used Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, to determine the significance of the violation. The violation had very low safety significance because: (1) it was not an as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This violation had a cross-cutting aspect in the human performance area, associated with the work control component, because licensee personnel failed to appropriately plan a work activity by not incorporating risk insights, job site conditions, including environmental conditions, which may impact human system interface and radiological safety, and the need for planned contingencies or compensatory actions, such as surveying and up-posting affected areas after a power ascension [H.3(a)].
Inspection Report# : 2013005 *(pdf)*

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# Public Radiation Safety

**Significance:** G Sep 30, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Implement the Offsite Dose Calculation Manual**
Inspectors identified three examples of a non-cited violation of Technical Specification 5.5, "Programs and Manuals," for failure to maintain and implement requirements of the offsite dose calculation manual (ODCM). Specifically, the licensee failed to: (1) adequately document and justify ODCM changes, (2) approve licensee initiated changes to the ODCM, and (3) implement the radiological effluent controls for liquid releases. The violation was entered into the licensee's corrective action program as Condition Report CR-GGN-2013-05039, and the licensee is evaluating the issue to determine the proper corrective action.

Failure to implement the requirements of the offsite dose calculation manual is a performance deficiency. This performance deficiency is more than minor because it affected the Public Radiation Safety Cornerstone attribute of program and process because the failure to adequately justify and approve offsite dose calculation manual changes resulted in 49 liquid effluent releases, contrary to the licensee's Offsite Dose Calculation Manual, Revision 37, requirements. Using Inspection Manual Chapter 0609, Appendix D, "Public Radiation Safety Significance Determination Process," dated February 12, 2008, the inspectors determined this to be a violation of very low safety

significance (Green). The violation was in the effluent release program but was not a substantial failure to implement the effluent program, and the dose to the public did not exceed the 10 CFR Part 50 Appendix I criterion or 10 CFR 20.1301(e) limits. The violation had a cross-cutting aspect in the human performance area associated with the resources component because the licensee failed to ensure the individuals preparing and reviewing offsite dose calculation manual changes had sufficient knowledge of the effluent release control system, its components, and its function to adequately evaluate the impact of the change [H.2(b)].

Inspection Report# : 2013004 *(pdf)*

**Significance:** G Sep 30, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Include Some Solid Radwaste Released in the 2012 Regulatory Guide 1.21 Annual Effluent Report**
Inspectors identified a non-cited violation of Technical Specification 5.6.3 because the licensee failed to include in the 2012 Annual Radiological Effluent Release Report some solid radioactive waste released to an offsite waste processor.

The failure to include in the 2012 Annual Radiological Effluent Release Report all solid radioactive waste released to an offsite waste processor was a performance deficiency, contrary to Technical Specification 5.6.3. The violation was determined to be more than minor because it was associated with the Public Radiation Safety Cornerstone attribute of program and process and adversely affected the cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation, in that some licensed radioactive material, which left the Grand Gulf Nuclear Station, was unaccounted for. Using Inspection Manual Chapter 0609, Appendix D, "Public Radiation Safety Significance Determination Process," dated February 12, 2008, the inspectors determined the violation to be of very low safety significance because, although it was a radioactive material control issue, it was not a transportation issue, and it did not result in public dose greater than 0.005 rem. The violation had a cross-cutting aspect in the human performance area, work control component because the licensee did not appropriately coordinate work activities by incorporating actions to address the need for work groups to communicate and coordinate with each other during activities in which interdepartmental coordination was necessary to assure human performance [H.3(b)].
Inspection Report# : 2013004 *(pdf)*

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# Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the cover letters to security inspection reports may be viewed.

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# Miscellaneous

**Significance: N/A** Dec 05, 2013
Identified By: NRC

Item Type: FIN Finding
**Grand Gulf 2013 Biennial Problem Identification and Resolution Inspection Summary**
The team reviewed a sample of system health reports, self assessments, trending reports and metrics, and various other documents related to the corrective action program. Licensee identified problems were entered into the corrective action program at a low threshold. Problems were generally prioritized and evaluated commensurate with the safety significance of the problems and corrective actions were generally implemented in a timely manner. Corrective actions were generally implemented in a timely manner commensurate with their importance to safety and addressed the identified causes of problems.

The licensee appropriately evaluated industry operating experience for relevance to the facility and had entered applicable items in the corrective action program. The licensee used industry operating experience when performing root cause and apparent cause evaluations. The licensee performed effective quality assurance audits and self assessments, as demonstrated by self identification of poor corrective action program performance and identification of ineffective corrective actions.
Inspection Report# : 2013007 *(pdf)*

**Significance: N/A** May 25, 2012
Identified By: NRC
Item Type: VIO Violation
**Violation for Grand Gulf (2012 Findings)**
Regulatory requirement: 10 CFR 54.13(a) states, in part, that information provided to the Commission by an applicant for a renewed lic3ense must be complete and accurate in all material respects.
Apparent violation: Contrary to the above, Entergy Operations, Inc (EOI) provided information to the NRC, for a renewed license at the Grand Gulf Nuclear Station (GGNS), in responses to several requests for additional information (RAIs) that was not complete and accurate in all material respects. The inaccurate information in the RAI responses was material to the NRC because the NRC relies on the information in RAI responses to determine whether the licensee has demonstrated that aging effects will be adequately managed as required by 10 CFR 54.21(a)(3).
Inspection Report# : 2013201 *(pdf)*
Inspection Report# : 2013202 *(pdf)*

Last modified : August 29, 2014